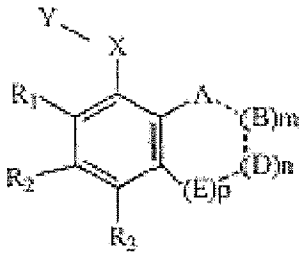
CLAIM AMENDMENTS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Withdrawn) A method of using a compound of General Formula I



Formula I

wherein:

X represents O, S;

Y represents H or, along with X, where X = O, a carbohydrate radical;

A represents N or NR_4;

B represents CR_5, NR_5 or N;

D represents CR_6, NR_6 or N;

E represents CR_7, NR_7 or N;

with the condition that the ring containing group A has a maximum of two nitrogen atoms in its structure;

m, n and p represent: 0 or 1, where m + n + p = 2 or 3;

the dashed lines - - - - represent a single or double bond;

R_1, R_2, R_3, R_4, R_5, R_6 and R_7 each independently represent a radioactive isotope, H, a halogen or a radical optionally having a radioactive isotope, said radical being chosen from: C_1-C_6 alkyl, OH, C_1-C_6 polyhydroxyalkyl, C_1-C_6 alkoxyl, C_1-C_6 alkoxyalkyl, $(CH_2)q$-OR', wherein q is 1, 2 or 3, CF_3, CH_2-CH_2F, O-CH_2-CH_2F, CH_2-CH_2-CH_2F, CN, NO_2, O(CO)R', OR', SR', COOR' $-SO_3H$, $(CH_2)r$-CO_2R", $(CH_2)r$-CO-R', wherein r is 1, 2 or 3 and Rph, wherein Rph represents a non substituted or substituted phenol group, the possible substituents of the phenol group being any of the meanings of R_1-R_7 except for a phenol group;

R' is H or a C_{1-3} alkyl group;

R" is H, a C_1-C_6 alkyl group or a C_1-C_6 alkyloxy group;

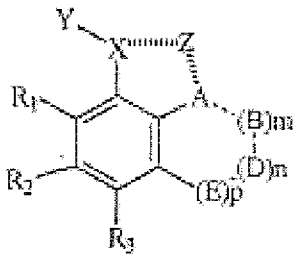
with the condition that only one of R_1, R_2, R_3, R_4, R_5, R_6, R_7, X and Y is or has a radioactive isotope;

said method comprising:

preparing a composition containing said compound of General Formula I for diagnosis monitoring of diseases associated with the formation of amyloid protein fibrils; and

optionally administering said composition to a subject and detecting amyloid protein fibrils based on uptake of said compound of General Formula I.

2. (Withdrawn) A method of using a compound of General Formula II.



Formula II

wherein:

X represents O, S;

Y represents H or, along with X, where X = O, a carbohydrate radical;

Z represents a metal or rare earth cation that may or may not be radioactive;

the | | | | | | | line represents a coordinate bond;

A represents N or NR_4;

B represents CR_5, NR_5 or N;

D represents CR_6, NR_6 or N;

E represents CR_7, NR_7 or N;

with the condition that the ring containing substituent A has a maximum of two nitrogen atoms in its structure;

m, n and p represent: 0 or 1, where m + n + p = 2 or 3;

the dashed lines - - - - represent a single or double bond;

R_1, R_2, R_3, R_4, R_5, R_6 and R_7 each independently represent a radioactive isotope, H, a halogen or a radical optionally having a radioactive

isotope, said radical being chosen from: C_1-C_6 alkyl, OH, C_1-C_6 polyhydroxyalkyl, C_1-C_6 alkoxyl, C_1-C_6 alkoxyalkyl, $(CH_2)q$-OR', wherein q is 1, 2 or 3, CF_3, CH_2-CH_2F, O-CH_2-CH_2F, CH_2-CH_2-CH_2F, CN, NO_2, O(CO)R', OR', SR', COOR' $-SO_3H$, $(CH_2)r$-CO_2R", $(CH_2)r$-CO-R', wherein r is 1, 2 or 3 and Rph, wherein Rph represents a non substituted or substituted phenol group, the possible substituents of the phenol group being any of the meanings of R_1-R_7 except for a phenol group;

R' is H or a C_{1-3} alkyl group;

R" is H, a C_1-C_6 alkyl group or a C_1-C_6 alkyloxy group;

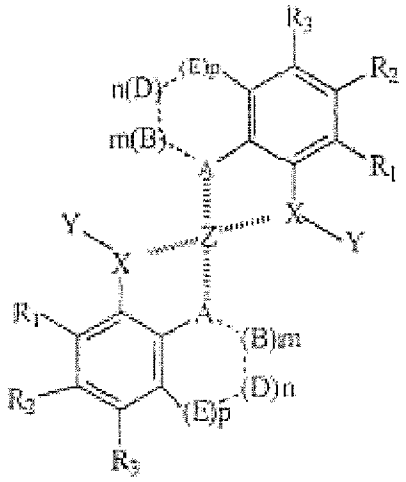
with the condition that only one of R_1, R_2, R_3, R_4, R_5, R_6, R_7, X, Y or Z is or has a radioactive isotope;

said method comprising:

preparing a composition containing said compound of General Formula II for diagnosis or monitoring of diseases associated with the formation of amyloid protein fibrils; and

optionally administering said composition to a subject and detecting amyloid plaques based on uptake of said compound of General Formula II.

3. (Withdrawn) A method of using a compound of General Formula III.



Formula III

wherein:

X represents O, S;

Y represents H or, along with X, where X = O, a carbohydrate radical;

Z represents a metal or rare earth cation that may or may not be radioactive;

the | | | | | | | line represents a coordinate bond;

A represents N or NR_4;

B represents CR_5, NR_5 or N;

D represents CR_6, NR_6 or N;

E represents CR_7, NR_7 or N;

with the condition that the ring containing substituent A has a maximum of two nitrogen atoms in its structure;

m, n and p represent: 0 or 1, where m + n + p = 2 or 3;

the dashed lines - - - - represent a single or double bond;

R_1, R_2, R_3, R_4, R_5, R_6 and R_7 each independently represent a radioactive isotope, H, a halogen or a radical optionally having a radioactive isotope, said radical being chosen from: C_1-C_6 alkyl, OH, C_1-C_6 polyhydroxyalkyl, C_1-C_6 alkoxyl, C_1-C_6 alkoxyalkyl, $(CH_2)q$-OR', wherein q is 1, 2 or 3, CF_3, CH_2-CH_2F, O-CH_2-CH_2F, CH_2-CH_2-CH_2F, CN, NO_2, O(CO)R', OR', SR', COOR' $-SO_3H$, $(CH_2)r$-CO_2R", $(CH_2)r$-CO-R', wherein r is 1, 2 or 3 and Rph, wherein Rph represents a non substituted or substituted phenol group, the possible substituents of the phenol group being any of the meanings of R_1-R_7 except for a phenol group;

R' is H or a C_{1-3} alkyl group;

R" is H, a C_1-C_6 alkyl group or a C_1-C_6 alkyloxy group;

with the condition that only one of R_1, R_2, R_3, R_4, R_5, R_6, R_7, X, Y or Z is or has a radioactive isotope;

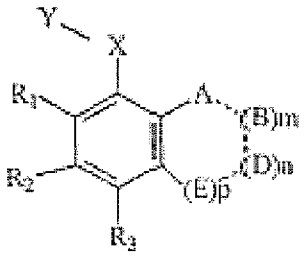
said method comprising:

preparing a composition containing said compound of General Formula III for diagnosis or monitoring of diseases associated with the formation of amyloid protein fibrils; and

optionally administering said composition to a subject and detecting amyloid plaques based on uptake of said compound of General Formula III.

4. (Original) Use according to claims 1, 2 and 3 for diagnosis and/or monitoring in animals, transgenic animals, and particularly in humans, of diseases such as Alzheimer's, Parkinson's, Huntington, cystic fibrosis, late onset diabetes, motor neuron disease, Mediterranean fever, Muckle-Wells syndrome, idiopathic myeloma, amyloid polyneuropathy, amyloid cardiomyopathy, senile systemic amyloidosis, hereditary cerebral haemorrhage with amyloidosis, Down syndrome, Creutzfeld-Jacob disease, Kuru, Gerstmann-Straussler-Schienker syndrome, thyroid medullar carcinoma, amyloid valve deposits, amyloidosis in dialysis patients, inclusion body myositis, amyloid muscular deposits, Sickle Cell Parkinson anaemia, type 2 diabetes, amongst others.

5. (Currently amended) Compounds of General Formula I



Formula I

wherein:

~~X represents O, S;~~

~~Y represents H or, along with X, where X = O, a carbohydrate radical;~~

X-Y represents O-H, S-H, =O or a cardohydrate radical;

A represents N or NR_4;

B represents CR_5, NR_5 or N;

D represents CR_6, NR_6 or N;

E represents CR_7, NR_7 or N;

with the condition that the ring containing substituent A has a maximum of two nitrogen atoms in its structure;

m, n and p represent: 0 or 1, where m + n + p = 2 or 3;

the dashed lines - - - - represent a single or double bond;

R_1, R_2, R_3, R_4, R_5, R_6 and R_7 each independently represent a radioactive isotope other than I^{125}, H, a halogen, ~~or~~ a radical optionally having a radioactive isotope other than I^{125}, or a phenol group, said phenol group being optionally substituted by a radioactive isotope other than I^{125}, a halogen, H or a radical optionally having a radioactive isotope other than I^{125};

said radicals optionally having a radioactive isotope other than I^{125} being chosen from: C_1-C_6 alkyl, OH, C_1-C_6 polyhydroxyalkyl, C_1-C_6 alkoxyl, C_1-C_6 alkoxyalkyl, $(CH_2)q$-OR', wherein q is 1, 2 or 3, CF_3, CH_2-CH_2F, O-CH_2-CH_2F, CH_2-CH_2-CH_2F, CN, NO_2, O(CO)R', OR', SR', COOR' $-SO_3H$, $(CH_2)r$-CO_2R", ~~$(CH_2)r$-CO-R',~~ wherein r is 1, 2 or 3, and $(CH_2)s$-CO-R', wherein s is 1, 2 or 3 ~~and Rph, wherein Rph represents a non-substituted or substituted phenol group, the possible substituents~~

~~of the phenol group being any of the meanings of R_1-R_7 except for a phenol group~~;

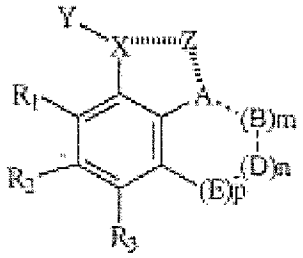
R' is H or a C_{1-3} alkyl group;

R" is H, a C_1-C_6 alkyl group or a C_1-C_6 alkyloxy group;

with the condition that R_1, R_2, R_3, R_4, R_5, R_6, R_7, ~~X~~ and Y are not all simultaneously H, and

with the condition that only one of R_1, R_2, R_3, R_4, R_5, R_6, and R_7, ~~X and Y~~ is or has a radioactive isotope other than I^{125}.

6. (Withdrawn) Compounds of General Formula II



Formula II

wherein:

X represents O, S;

Y represents H or, along with X, where X = O, a carbohydrate radical;

Z represents a metal or rare earth cation that may or may not be radioactive;

the | | | | | | | line represents a coordinate bond;

A represents N or NR_4;

B represents CR_5, NR_5 or N;

D represents CR_6, NR_6 or N;

E represents CR_7, NR_7 or N;

with the condition that the ring containing group A has a maximum of two nitrogen atoms in its structure;

m, n and p represent: 0 or 1, where m + n + p = 2 or 3;

the dashed lines - - - - represent a single or double bond;

R_1, R_2, R_3, R_4, R_5, R_6 and R_7 each independently represent a radioactive isotope, H, a halogen or a radical optionally having a radioactive isotope, said radical being chosen from: C_1-C_6 alkyl, OH, C_1-C_6 polyhydroxyalkyl, C_1-C_6 alkoxyl, C_1-C_6 alkoxyalkyl, $(CH_2)q$-OR', wherein q is 1, 2 or 3, CF_3, CH_2-CH_2F, O-CH_2-CH_2F, CH_2-CH_2-CH_2F, CN, NO_2, O(CO)R', OR', SR', COOR' $-SO_3H$, $(CH_2)r$-CO_2R", $(CH_2)r$-CO-R', wherein r is 1, 2 or 3 and Rph, wherein Rph represents a non substituted or substituted phenol group, the possible substituents of the phenol group being any of the meanings of R_1-R_7 except for a phenol group;

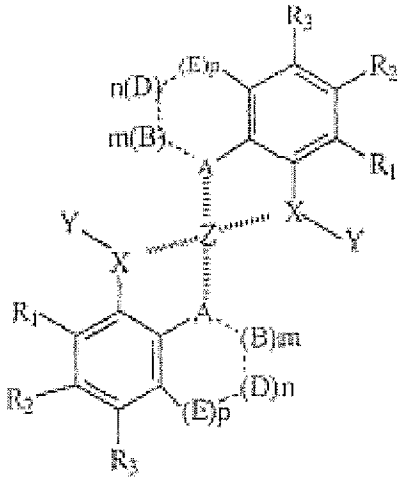
R' is H or a C_{1-3} alkyl group;

R" is H, a C_1-C_6 alkyl group or a C_1-C_6 alkyloxy group;

with the condition that R_1, R_2, R_3, R_4, R_5, R_6, R_7, X and Y are not all simultaneously H, and

with the condition that only one of R_1, R_2, R_3, R_4, R_5, R_6, R_7, X, Y or Z is or has a radioactive isotope;

7. (Withdrawn) Compounds of General Formula III



Formula III

wherein:

X represents O, S;

Y represents H or, along with X, where X = O, a carbohydrate radical;

Z represents a metal or rare earth cation that may or may not be radioactive;

the | | | | | | | line represents a coordinate bond;

A represents N or NR_4;

B represents CR_5, NR_5 or N;

D represents CR_6, NR_6 or N;

E represents CR_7, NR_7 or N;

with the condition that the ring containing group A has a maximum of two nitrogen atoms in its structure;

m, n and p represent: 0 or 1, where m + n + p = 2 or 3;

the dashed lines - - - - represent a single or double bond;

R_1, R_2, R_3, R_4, R_5, R_6 and R_7 each independently represent a radioactive isotope, H, a halogen or a radical optionally having a radioactive isotope, said radical being chosen from: C_1-C_6 alkyl, OH, C_1-C_6 polyhydroxyalkyl, C_1-C_6 alkoxyl, C_1-C_6 alkoxyalkyl, $(CH_2)q$-OR', wherein q is 1, 2 or 3, CF_3, CH_2-CH_2F, O-CH_2-CH_2F, CH_2-CH_2-CH_2F, CN, NO_2, O(CO)R', OR', SR', COOR' $-SO_3H$, $(CH_2)r$-CO_2R", $(CH_2)r$-CO-R', wherein r is 1, 2 or 3 and Rph, wherein Rph represents a non substituted or substituted phenol group, the possible substituents of the phenol group being any of the meanings of R_1-R_7 except for a phenol group;

R' is H or a C_{1-3} alkyl group;

R" is H, a C_1-C_6 alkyl group or a C_1-C_6 alkyloxy group;

with the condition that only one of R_1, R_2, R_3, R_4, R_5, R_6, R_7, X, Y or Z is or has a radioactive isotope;

and with the condition that when

A is N,

B, D and E are all CH,

X is O, and

m, n and p are all 1,

then R_1, R_2 and R_3 are not all H.

8. (Original) Compounds according to claim 5, characterised by being:

5-chloro-7-[^{123}I]iodo-8-hydroxyquinoline

5-chloro-7-[^{124}I]iodo-8-hydroxyquinoline

5-[^{123}I]iodo-7-iodo-8-hydroxyquinoline

5-iodo-7-[^{123}I]iodo-8-hydroxyquinoline

5-[^{124}I]iodo-7-iodo-8-hydroxyquinoline

5-iodo-7-[^{124}I]iodo-8-hydroxyquinoline

5-chloro-7-[^{18}F]fluoro-8-hydroxyquinoline

5-[^{18}F]fluoro-7-iodo-8-hydroxyquinoline

5-chloro-7-iodo-8-[^{11}C]methoxyquinoline

5-chloro-7-[^{123}I]iodo-8-hydroxyquinoline glucuronide

5-chloro-7-[^{124}I]iodo-8-hydroxyquinoline glucuronide

5-chloro-7-[^{18}F]fluoro-8-hydroxyquinoline glucuronide

5-[^{18}F]fluoro-7-iodo-8-hydroxyquinoline glucuronide

5-chloro-7-iodo-8-[^{11}C]methoxyquinoline glucuronide

5-[^{123}I]-8-hydroxyquinoline

5-[^{124}I]-8-hydroxyquinoline

7-[^{123}I]-8-hydroxyquinoline

7-[^{124}I]-8-hydroxyquinoline

5-[^{18}F]-8-hydroxyquinoline

5-[^{18}F]-8-hydroxyquinoline

9. (Withdrawn) Compounds according to claim 6:

5-chloro-7-[^{123}I]iodo-8-hydroxyquinoline Fe(II) complex

5-chloro-7-[^{123}I]iodo-8-hydroxyquinoline Cu(II) complex

5-chloro-7-[^{123}I]iodo-8-hydroxyquinoline Zn(II) complex

5-chloro-7-[^{123}I]iodo-8-hydroxyquinoline Mn(II) complex

5-chloro-7-[^{124}I]iodo-8-hydroxyquinoline Fe(II) complex

5-chloro-7-[^{124}I]iodo-8-hydroxyquinoline Cu(II) complex

5-chloro-7-[^{124}I]iodo-8-hydroxyquinoline Zn(II) complex

5-chloro-7-[^{124}I]iodo-8-hydroxyquinoline Mn(II) complex

5-chloro-7-[^{18}F]fluoro-8-hydroxyquinoline Fe(II) complex

5-chloro-7-[^{18}F]fluoro-8-hydroxyquinoline Cu(II) complex

5-chloro-7-[^{18}F]fluoro-8-hydroxyquinoline Zn(II) complex

5-chloro-7-[^{18}F]fluoro-8-hydroxyquinoline Mn(II) complex

5-[^{18}F]fluoro-7-iodo-8-hydroxyquinoline Fe(II) complex

5-[^{18}F]fluoro-7-iodo-8-hydroxyquinoline Cu(II) complex

5-[^{18}F]fluoro-7-iodo-8-hydroxyquinoline Zn(II) complex

5-[^{18}F]fluoro-7-iodo-8-hydroxyquinoline Mn(II) complex

5-chloro-7-iodo-8-[^{11}C]methoxyquinoline Fe(II) complex

5-chloro-7-iodo-8-[^{11}C]methoxyquinoline Cu(II) complex

5-chloro-7-iodo-8-[^{11}C]methoxyquinoline Zn(II) complex

5-chloro-7-iodo-8-[^{11}C]methoxyquinoline Mn(II) complex

5-chloro-7-iodo-8-hydroxyquinoline ^{99m}Tc complex

5-chloro-7-iodo-8-hydroxyquinoline ^{111}In complex

5-chloro-7-iodo-8-hydroxyquinoline ^{201}Tl complex

5-chloro-7-iodo-8-hydroxyquinoline ^{67}Ga complex

5-chloro-7-iodo-8-hydroxyquinoline ^{68}Ga complex

5-chloro-7-iodo-8-hydroxyquinoline ^{67}Cu complex

5-chloro-7-iodo-8-hydroxyquinoline ^{64}Cu complex

10. (Withdrawn) Compounds according to claim 7:

5-chloro-7-[^{123}I]iodo-8-hydroxyquinoline Fe(II) bis-chelate complex

5-chloro-7-[^{123}I]iodo-8-hydroxyquinoline Cu(II) bis-chelate complex

5-chloro-7-[^{123}I]iodo-8-hydroxyquinoline Zn(II) bis-chelate complex

5-chloro-7-[^{123}I]iodo-8-hydroxyquinoline Mn(II) bis-chelate complex

5-chloro-7-[^{124}I]iodo-8-hydroxyquinoline Fe(II) bis-chelate complex

5-chloro-7-[^{124}I]iodo-8-hydroxyquinoline Cu(II) bis-chelate complex

5-chloro-7-[^{124}I]iodo-8-hydroxyquinoline Zn(II) bis-chelate complex

5-chloro-7-[^{124}I]iodo-8-hydroxyquinoline Mn(II) bis-chelate complex

5-chloro-7-[^{18}F]fluoro-8-hydroxyquinoline Fe(II) bis-chelate complex

5-chloro-7-[^{18}F]fluoro-8-hydroxyquinoline Cu(II) bis-chelate complex

5-chloro-7-[^{18}F]fluoro-8-hydroxyquinoline Zn(II) bis-chelate complex

5-chloro-7-[^{18}F]fluoro-8-hydroxyquinoline Mn(II) bis-chelate complex

5-[^{18}F]fluoro-7-iodo-8-hydroxyquinoline Fe(II) bis-chelate complex

5-[^{18}F]fluoro-7-iodo-8-hydroxyquinoline Cu(II) bis-chelate complex

5-[^{18}F]fluoro-7-iodo-8-hydroxyquinoline Zn(II) bis-chelate complex

5-[^{18}F]fluoro-7-iodo-8-hydroxyquinoline Mn(II) bis-chelate complex

5-chloro-7-iodo-8-[^{11}C]methoxyquinoline Fe(II) bis-chelate complex

5-chloro-7-iodo-8-[^{11}C]methoxyquinoline Cu(II) bis-chelate complex

5-chloro-7-iodo-8-[^{11}C]methoxyquinoline Zn(II) bis-chelate complex

5-chloro-7-iodo-8-[^{11}C]methoxyquinoline Mn(II) bis-chelate complex

5-chloro-7-iodo-8-hydroxyquinoline ^{99m}Tc bis-chelate complex

5-chloro-7-iodo-8-hydroxyquinoline ^{111}In bis-chelate complex

5-chloro-7-iodo-8-hydroxyquinoline ^{201}Tl bis-chelate complex

5-chloro-7-iodo-8-hydroxyquinoline ^{67}Ga bis-chelate complex

5-chloro-7-iodo-8-hydroxyquinoline ^{68}Ga bis-chelate complex

5-chloro-7-iodo-8-hydroxyquinoline ^{67}Cu bis-chelate complex

5-chloro-7-iodo-8-hydroxyquinoline ^{64}Cu bis-chelate complex

11. (Currently amended) A pharmaceutical composition ~~for diagnosis of diseases associated with protein deposition~~ for detection of amyloid plaques in the central nervous system comprising one of the compounds defined in ~~claims 5 to~~ claim 5 or claim 8 ~~9~~.

12. (Withdrawn) A method for preparing the compounds defined in claims 5 and 8 comprising:

a) making a quinoline derivative react with an electrophilic aromatic halogenation reagent incorporating a radioactive halogen atom, or

b) making a quinoline derivative react with a radioactive halogenated derivative to effect an aromatic nucleophilic substitution reaction.

13. (Withdrawn) A method for preparing the compounds defined in claims 6 and 9 comprising:

a) making a quinoline derivative react with a metal or rare earth cation, or,

b) making a quinoline derivative react with a radioactive isotope of these elements

such that the metal or rare earth cation or the radioactive isotope of these elements is in a suitable oxidation state so as to produce the corresponding chelating product defined in claims 6 and 9.

14. (Withdrawn) A method for preparing the compounds defined in claim 7 comprising making a quinoline derivative react with:

a) a metal or rare earth cation, or,

b) a radioactive isotope of these elements.

in a suitable oxidation state so as to produce the corresponding chelating product defined in claims 7 and 10.

15. (Withdrawn) The method of claim 1, wherein the amyloid protein fibrils appear as amyloid plaques and affect the central nervous system.

16. (Withdrawn) The method of claim 2, wherein the amyloid protein fibrils appear as amyloid plaques and affect the central nervous system.

17. (Withdrawn) The method of claim 3, wherein the amyloid protein fibrils appear as amyloid plaques and affect the central nervous system.